

MOZOLOWSKI, W.; ZYDOWO, M.; KALINOWSKI, J.; MOSCZCZYNSKA, Z.

A characterization of the blood-serum in the newborn child, in the parturient woman, and in the healthy non-pregnant woman, by means of refraction, viscosity and specific gravity. Bull. internat. Acad. polon. sc. Classe med no.1-10:65-78 Jan-Dec 50. (CML 20:8)

ca  
1951

Capillary viscometer with constant pressure. Jerry  
Kullinowski. *Hand. intern. acad. polon. sci., Classe med.*  
1930, 75-86 (in English).—A device for maintaining a const.  
air pressure upon a capillary viscometer consists of a balance  
with Hg reservoirs under each arm. Tilting of the balance  
maintains the const. pressure. William M. McCord

"APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000620120003-7

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CIA-RDP86-00513R000620120003-7"

KALINOWSKI, Jerzy

Dependence of serum viscosity on the protein concentration. Polskie  
arch. med. wewn. 25 no.1a:205-206 1955.

1. Z zakładu chemii fizjol. A.M. w Gdansk; kier. prof. dr.  
W. Mozolowski.

(BLOOD

viscosity, relation to proteins concentration)

(BLOOD PROTEINS

concentration, relation to blood viscosity)

KALINOWSKI, J.; DERA, J.

Luminescence of fluorescent dielectric liquids under the influence of high electric fields. Acta physica Pol 25 no.2: 205-210 F '64

1. II Department of Physics, Technical University, Gdansk

L 19858-65 EWT(m)/EWP(j)/T Pc-4 ASD(m)-3/AFWL/ESM(e) MLK/RM

AM4021970 BOOK EXPLOITATION

Kalinowski, Jerzy (Master in Engineering); Urzyszyk, Grzegorz Waldemar (Doctor in Engineering)

Study of chemical fibers and their properties (Włókna chemiczne; badania i właściwości)  
Warsaw, WPL, 1963. 281 p. illus., biblio. Errata slip inserted. 1304 copies printed.

TOPIC TAGS: chemistry, commercial synthetic fiber, synthetic fiber

PURPOSE AND COVERAGE: This book is intended for engineering and laboratory personnel in the textile industry, and for students at schools of higher education. The book, based mainly on international sources, provides fairly detailed information on

Fibers. No personalities are mentioned.

TABLE OF CONTENTS [abridged]:

1. Chemical structure of fibers -- 7

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LAPINSKA, Jozefina; oraz wspolpracownicy: BANASZKIEWICZ, Halina;  
STALINSKA, Elzbieta; DOBRUCKA-KOKINSKO, Ewa; KALINOWSKI, Jan;  
KROSNIAK, Franciszka; GWOZDZ, Jozef; LUTZ, Hama; LUTZ, Jerzy;  
DWORAK, Wlodzimierz; NARUSZEWICZ, Wanda

The efficiency of occupational rehabilitation in sanatoria  
for young people. Gruzlica 33 no.4:323-332 Ap '65.

1. Z Zespolu Nadzoru Specjalistycznego Instytutu Gruzlicy  
(Kierownik: lek. A. Kwiekowa) (for Lapinska). 2. Sanatorium  
w Lagiewnikach (for Banasziewicz, Stalinska). 3. Sanatorium  
im. Okrzei w Otwocku (for Dobrucka-Kokinsko, Kalinowski).  
4. Sanatorium w Istebnej (for Krosniak, Gwozdz). 5. Sanatorium  
w Dziekanowie Lesnym (for H. Lutz, J. Lutz). 6. Sanatorium w  
Dzierzaznie (for Dworak, Narusiewicz).

ACC NR: AP7000959

SOURCE CODE: PD/0047/66/017/005/0537/0563

AUTHOR: Dera, Jerzy; Kalinowski, Jan

ORG: [Dera] Marine Station, ZG-PAN (Stacja Morska ZG-PAN); [Kalinowski] Department II of Physics, Gdansk Polytechnic (II Katedra Fizyki Politechniki Gdanskiej)

TITLE: Selected problems of physics of the sea. Part I. Radiant energy transfer in the sea

SOURCE: Postepy fizyki, v. 17, no. 5, 1966, 537-563

TOPIC TAGS: optic property, ocean property, underwater optics

ABSTRACT: Current development in sea optics with special emphasis upon propagation and dispersion of the radiant energy in sea waters, are reviewed and interpreted. The topics covered in detail are: 1) sea water as an optical medium, with consideration of the chemical composition of the water in terms of minerals and organic substances, and of the elementary optical phenomena (scattering, absorption, etc.) in general; 2) optical properties of sea water and their classification into the true, apparent, and hybrid properties; 3) fundamentals of Preisendorfer theory of propagation of radiant energy in sea waters, including the mathematical derivations of the equations summarizing this theory; and 4) verification of the theory by experiments on laboratory models as well as in natural waters. It is pointed out that lack of sufficient experimental data hinders the scientists from developing a completely comprehensive

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ACC NR: AP7000959

and general theory of the propagation of radiant energy in sea waters. The author expresses his gratitude to Prof. Dr. I. Adamczewski for valuable comments on this work. Orig. art. has: 55 formulas, 3 tables, and 14 figures.

SUB CODE: 20/  
08/ SUBM DATE: none/ ORIG REF: 004/ SOV REF: 015/ OTH REF: 055

Card 2/2

**Determination of the dielectric constant of liquid dielectrics by the heterodyne method.** K. HAYNAKOWSKI AND K. KALINOWSKI. *Rozzniki Chem.* 12, 225-31 (1931) in German (1832). A simple app. is described for the approx. detn. of the dielectric constant of liquids. It is especially adapted to technical use. The dielectric const. of  $\text{CCl}_4$  is 2.24, of  $\text{KCl}$  4.60. J. WINNIKLER

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

A-1

**Influence of the methyl, ethyl, and phenyl radicals on the association of salicylic acid derivatives.** K. KALINOWSKI (Rocz. Chem., 1933, 13, 384—396). The mol. polarizations of Ph, Et, and Me salicylate in  $C_6H_6$  at  $40^\circ C$  are respectively 256.8, 207.5, and 143.4; the moles are of the dipole type, and are increasingly associated as the concn. rises and the temp. falls. In solutions containing both Ph and Et salicylate association is  $>$  for each ester separately; and occurs between both similar and dissimilar moles. R. T.

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
COMMON ELEMENTS																										COMMON VARIANTS																									
<p><i>CA</i></p> <p><b>Determination of derivatives of barbituric acid.</b> K. Wiertelak, <i>Wiadomosci Farm.</i> 62, 688-9, 1947-48 (1955) (German summary).—This method is a variation of Budde's procedure (C. A. 28, 3176). The following substances were detd.: diethylbarbituric acid (veronal) (I), phenylethylbarbituric acid (luminal) (II), diallylbarbituric acid (dial) (III), butylethylbarbituric acid (isoneryl) (IV), Na salt of I (medinal) and Na salt of II. By use of a NaOH soln. with acetone or alc. (these compds. can be detd. with an accuracy of 0.1%). Procedure: Dissolve 0.3 to 0.5 g. of the substance in 20-25 cc. Me<sub>2</sub>CO or 30-35 cc. alc., add 15-20 cc. of a 1 N NaOH soln., and 20-30 cc. H<sub>2</sub>O. After complete soln. of the substance titrate with a 0.1 N AgNO<sub>3</sub> soln. to a visible turbidity. One cc. of 0.1 N AgNO<sub>3</sub> equals 0.018412 g. of I, 0.023213 g. of II, 0.020812 g. of III, 0.021212 g. of IV, 0.020813 g. of the Na salt of I, or 0.025412 g. of the Na salt of II.</p> <p>J. Wiertelak</p>																										17																									
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COMMON ELEMENTS		PROCESSING AND PROPERTIES INDEX	
<p>BC</p>		<p>a-1</p>	
<p>Thermoregulator of the ordinary type, regulating the heating current without a relay. K. K. K. (1984, 10, 200-200). R. T.</p>			
<p>ASB. 1.1.1 METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>FROM DIVISION</p>		<p>FROM DIVISION</p>	
<p>140000 0.1</p>		<p>140000 0.1</p>	

24 17

PROCESSES AND PROPERTIES INDEX

Determination of amygdalin and sucrose in the extract of the pressed residue of the seeds of *Prunus armeniaca* L. (apricots). Kazimierz Kalinowski. *Wiadomości Farm.* 64, 545-8, 552-4(1907). *Chem. Zentr.* 1938, 1, 837. —The ext. was prepd. by leaching out the pressed pulp with alc. in the presence of  $\text{CaCO}_3$ , evap. the alc. and adjusting the amt. of water to 2 cc. per g. of pressed pulp. The sucrose and amygdalin contents were calcd. from detns. of the rotation after submitting portions of the mixt. to the action of invertase and emulsin, resp. From 100 g. of pressed residue 3.45 g. of sucrose and 3.22 g. of amygdalin were obtained. W. A. Moore

ALB-51A METALLURGICAL LITERATURE CLASSIFICATION

RIGHT STRIDEV

SHIGSO NIS ONY GEL

RELLSTONE

ALB-51A METALLURGICAL LITERATURE CLASSIFICATION

RIGHT STRIDEV

SHIGSO NIS ONY GEL

RELLSTONE



*Br. als*

*C-3. Physiology etc.  
(Oka. ma. etc.)*

1120. Determination of sulphanilamide. K. Kalmayaki (Ann. Univ. M. Curie-Skłodowska, 1940, 1 [1.4], 1-5). A solution of 0.1-0.2 g. of sulphanilamide in 15-20 ml. of  $n\text{-H}_2\text{SO}_4$  is made alkaline with  $n\text{-NaOH}$ , and added to a freshly prepared mixture of 30-80 ml. of 0.1N- $\text{KMnO}_4$ , 10-20 ml. of 10%  $\text{KBr}$ , and 5 ml. of conc.  $\text{H}_2\text{SO}_4$ . The solution is kept in the dark for 10 min., cooled, 20 ml. of 10%  $\text{KI}$  are added, and the  $\text{I}$  liberated is titrated with 0.1N- $\text{Na}_2\text{S}_2\text{O}_3$ ; the amount of  $\text{Br}$  used for production of dibromosulphanilamide is calc. therefrom. The error varies from 0.8% to 1.0-1.5%. R. Tauson

118

CA

Determination of L-ascorbic acid by the bromometric method with the use of a special apparatus. Katunierz,.... Kalinowski (Acad. Med., Lublin, Poland). *Farm. Polska* 7, 121-4(1951)(English summary).---A drawing and detailed description are given of an original glass app. which makes possible the detn. of ascorbic acid as well as some

other substances, e.g. sulfonamides, in quantities of 10 to 50 mg. with an accuracy down to 0.5%. 30 references.  
Edward A. Ackermann

KALINOWSKI, K.

"Coulometric Determination of Isonicotinic Acid Hydrazide by Electrochemical Oxidation with Chlorine." P. 73. (PRZEMYSŁ CHEMICZNY, Vol. 10, No. 2, Feb. 1954. Warszawa, Poland)

SO; Monthly List of East European Accessions, (EEAL), IC, Vol. 4, No. 1, Jan. 1955 Uncl.

KALINOWSKI, K.

528. Coulometric determination of *isoniazid* acid hydrate (isoniazid) by electrochemical oxidation with chlorine. K. Kalinowski (Mol. Acad. Lodz, Poland) (*Prepr. Chem. Soc.* 10, 73-74).  
 Chlorine liberated by electrolysis of 10 per cent. aq. HCl, which also serves as electrolyte, oxidises directly isoniazid present in the anode compartment. The anode compartment is separated from the cathode by an asbestos sheet and contains methyl red, decolorisation of which by excess of chlorine marks the end of the reaction. Platinum-wire electrodes and a current density of 10 mA per sq. cm are used. A milliammeter and iodine coulometer are placed in series with the electrolysed soln. The liberated iodine is titrated with 0.01 N  $\text{Na}_2\text{S}_2\text{O}_3$  (1 ml of  $\text{Na}_2\text{S}_2\text{O}_3$  = 0.34238 mg of isoniazid). The error is  $\pm$  0.3 per cent.  
 A. D. JAKUBOWICZ

KALINOWSKI, Kazimierz

Colorimetric determination of isonicotinic acid hydrazide with electrochlorine. Acta Poloniae pharm. 11 no.2:113-116 1954.

1. Z Zakładu Chemii Farmaceutycznej Akademii Medycznej w Łodzi.  
Kierownik: prof. dr K.Kalinowski.

(NICOTINIC ACID ISOMERS, determination,

\*colorimetry, chlorine oxidation technic)

(CHLORINE,

\*oxidation in colorimetric determ. of nicotinic acid isomers)

(COLORIMETRY,

\*of nicotinic acid isomers, chlorine oxidation technic)

KALINOWSKI, Kazimierz, Lodz, ul. Narutowicz 75 b, m. 11

Nutrition as a basic factor in efficacy of geriatric medicine.  
Wiadomosci lek. 8 no.5:221-227 May '55.

(AGED, diseases

ther., drugs, eff. of nutrition)

(NUTRITION, effects,

on chemother, in geriatric dis.)

KALINOWSKI, Kazimierz

~~Drugs used in geriatrics. Wiadomosci lek. 8 no.6:273-280 June '55.~~

1. Katedra Chemii Farmc. A.M. Lodz.

(AGED, diseases

ther., use of drugs)

(DRUGS

used in geriatrics)

KALINOWSKI, K.



KALINOWSKI, KAZIMIERZ

Poland/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61908

Author: Kalinowski, Kazimierz

Institution: None ZAKLADU Chem FARM A.M. w Lodz.

Title: Coulometric Determination of Novocain (Hydrochloride of the Diethyl-aminoethyl Ester of p-aminobenzoic Acid) by Means of Electrolytically Generated Bromine

Original

Periodical: Kulometryczne oznaczenie nowokainy (chlorowodorek p-aminobenzoesanu dwuetyloamino-etylowego) za pomoca elektrobromu, Acta polon. pharmac., 1956, 13, No 1, 47-52; Polish; Russian and English resumés

Abstract: Detailed description of method and apparatus for a coulometric determination of novocain by means of electrolytically generated bromine. In the experiments use was made of 30% KBr in 15% H<sub>2</sub>SO<sub>4</sub>. One ma-sec corresponds to 0.000706 mg novocain. Error, from -0.6 to +0.5%.

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CIA-RDP86-00513R000620120003-7"

KALINOWSKI, H. E.

Coulometric determination of ascorbic acid. K. Kalinowski  
has determined 30 mg of ascorbic acid in 10 ml of 0.1% ascorbic acid  
solution using a microammeter at 10 sec. intervals. The solution is added  
to 5 ml of 5% NaCl in 0.01% HCl containing 0.1 mg of  
ascorbic acid, and the microammeter is again read after the excess  
of I not reduced by ascorbic acid is titrated.

H. Kalinowski

KALINOVSKY

Poland / Analytical Chemistry.  
Analysis of Organic Substances.

E-3

Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4386

Author : Kalinovsky, Bershtel', Fetsko, Sveshkhovsky

Title : The Quantitative Micro-and Macro-Determination of Methyl Thiouracil (2-thio-4-oxy-6-methylpyrimidine) by Coulometric and Permanganate-Bromometric Methods

Orig Pub: Acta polon. pharmae., 1957, 14, No. 2, 77-83

Abstract: The permanganate-bromometric determination of methyl thiouracil (1) is carried out in a bromoscope consisting of a conical flask to which a fermentation tube (FT) and separatory funnel (SF) are tightly connected. First, into the flask, 50 ml. of 0.1N  $\text{KMnO}_4$  (11) and 10 ml. of 10% KBr

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which is the current density on the anode. Into

Card 2/3

APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000620120003-7"

Poland / Analytical Chemistry.  
Analysis of Organic Substances.

E-3

Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4386

the anode area, 10 ml. of the solution to be analyzed containing (0.05-0.10g./1000 ml.) and 10 ml. of 20% IV are introduced, and into the cathode area a few ml. of 10% IV. The electrolysis is carried out at 20°C. to the appearance of free  $\text{Cl}_2$  in the analyzed solution. 1 g-atom of  $\text{Cl}_2$  is equivalent to  $1/8$  moles of I. The error of the determination is  $\pm 1\%$ .

Card 3/3

COUNTRY :  
CATEGORY :

H

ABS. JOUR. : RZhKhim., No 17, 1959, No. 61850

AUTHOR :  
INSTITUTE :  
TITLE :

ORIG. PUB. :

ABSTRACT : I is  $\pm 3\%$ , for II is  $\pm 6\%$ . -- Ya. Shteynberg.

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H - 73

COUNTRY : Poland  
CATEGORY :

H-17

ABS. JOUR. : RZhKhim., No. 21 1959, No.

75822

AUTHOR : Kalinowski, K. and Baran, H.

INST. : Not given

TITLE : The Nephelometric Determination of Luminal (5-ethyl-5-phenylbarbituric acid)

ORIG. PUB. : Acta Polon Pharmac, 15, No 5, 527-531 (1958)

ABSTRACT : A nephelometric method (using the Pulfrich nephelometer) is described for the quantitative determination of luminal (I), based on its reaction with  $\text{Hg}(\text{ClO}_4)_2$ . The relative and absolute turbidities of solutions of I have been measured and curves giving the dependence of these quantities on the concentration of I have been constructed. The method permits the determination of 100-550 gammas of I with an error of less than  $\pm 4\%$ . The time required for the analysis is about 5 min.

From authors' summary

CARD: 1/1

KALINOWSKI, Kazimierz

Titration with high frequency currents with the use of measuring vessels of the electrolytic condenser type. I. Determination of codeine and salicylic acid in aqueous media. Acta pol. pharm. 28 no.5:349-355 '61.

1. Z Zakladu Chemii Farmaceutycznej Akademii Medycznej w Lodzi  
Kierownik: prof. dr K.Kalinowski.  
(CODEINE chem) (SALICYLIC ACID chem)  
(CHEMISTRY PHARMACEUTIC)

KALINOWSKI, Kazimierz, prof.dr.

Progress and current problems of drug analysis in pharmacy.  
Farmacja Polska 18 no.7:153-155 Ap '62.

KALINOWSKI, Kazimierz; FECKO, Jerzy

- Iodocoulometric method for the microdetermination of noramidopyrine sodium methanesulfonate (Novalgin). Acta pol. pharm. 20 no.1:53-58 '63.

1. Z Zakładu Chemii Farmaceutycznej Akademii Medycznej w Łodzi  
Kierownik: prof. dr K. Kalinowski.

(AMINOPYRINE) (SULFONIC ACIDS) (CHEMISTRY, PHARMACEUTICAL)  
(MICROCHEMISTRY) (IODINE)



KALINOWSKI, Kazimierz; PIOTROWSKA, Alina

Bromocoulometric microdetermination of chlortetracycline hydrochloride and oxytetracycline hydrochloride. Acta pol. pharm. 20 no.2:199-204 '63.

1. Z Zakladu Chemii Farmaceutycznej Akademii Medycznej w Lodzi Kierownik: prof. dr K. Kalinowski.

(CHLORTETRACYCLINE) (OXYTETRACYCLINE)  
(CHEMISTRY, PHARMACEUTICAL) (MICROCHEMISTRY)

KALINOWSKI, Kazimierz; KORZYBSKI, Roman

Mercurial coulometric determination of tolbutamide. Acta pol.  
pharm. 20 no.3:221-224 '63.

1. Z Zakladu Chemii Farmaceutycznej Akademii Medycznej w Lodzi  
Kierownik: prof. dr K. Kalinowski.

(TOLBUTAMIDE) (MERCURY) (INDICATORS AND REAGENTS)  
(CHEMISTRY, PHARMACEUTICAL)

KALINOWSKI, Kazimierz; ZWIERZCHOWSKI, Zbigniew

Chlorocoulometric microdetermination of the sodium, potassium and dicalcium salts of p-aminosalicylic acid. Acta pol. pharm. 20 no.4:303-308 '63.

1. Z Zakladu Chemii Farmaceutycznej Akademii Medycznej w Lodzi Kierownik: prof. dr K. Kalinowski.

(AMINOSALICYLIC ACID) (CHEMISTRY, ANALYTICAL)  
(SODIUM) (POTASSIUM) (CALCIUM)  
(MICROCHEMISTRY)

KALINOWSKI, Kazimierz; ZWIERZCHOWSKI, Zbigniew

Coulometric microdetermination of a mixture of isoniazid and the sodium salt of p-aminosalicylic acid with the aid of 2 haloids. Acta pol. pharm. 20 no.4:309-313 '63.

1. Z Zakładu Chemii Farmaceutycznej Akademii Medycznej w Łodzi  
Kierownik: prof. dr K. Kalinowski.

(AMINOSALICYLIC ACID) (ISONIAZID)  
(CHEMISTRY, ANALYTICAL) (CHLORINE)  
(BROMINE) (INDICATORS AND REAGENTS)  
(MICROCHEMISTRY)

KALINOWSKI, K., prof. dr

From the Commission for Polish Pharmacopoeia. Farmacja Pol  
20 no. 5/6.193-199 25 M. '62.

1. Chairman of the Commission for Polish Pharmacopoeia.

KALINOWSKI, Kazimierz

Professor K. Hrynakowski as a man and teacher. Farmacja  
Pol 20 no.9/10:355-357 25 My '64.

KALINOWSKI, Kazimierz, prof. dr.; FECKO, Jerzy.

Chloro- and bromo-coulometric determination of phenylbutazone.  
Acta Pol. pharm. 21 no.3:247-251 '64

1. Z Zakladu Chemii Farmaceutycznej Akademii Medycznej w Lodzi  
(kierownik: prof. dr. K. Kalinowski).

COUNTRY : POLAND H  
 CATEGORY : Chemical Technology. Chemical Products and  
 Their Applications. Food Industry  
 ABS. JOUR. : ŻEKNIA, No. 23 1957, No. 83807  
 AUTHOR : Hattowski, R.; Kalinowski, L.  
 INST. : -  
 TITLE : Evaluation of Butter Production from the  
 Standpoint of Microbiological Investigations,  
 Conducted at the Institute of Milk Industry  
 ORIG. PUB. : Przegl. mleczarski, 1957, 5, No 12, 20-22  
 ABSTRACT : Bacteriological quality of Polish butter is  
 considered lower than of that produced in the  
 USSR, GDR or England. The overall bacterial  
 content of highest quality Polish butter rea-  
 ches 22 mln/ml, wherein approx. 60% of micro-  
 flora consist of non-milk curdling varieties  
 and in the 54% of samples the presence of in-  
 testinal bacteria was revealed. The reason for  
 low quality butter is the low quality raw ma-  
 terials, the composition of curdling and main-  
 ly unsatisfactory sanitary-hygienic conditions  
 CARD: 1/2

CARD: 2/2



KALINOWSKI, L.

Investigation of the Kirkendall effect by the continuous method.  
Bul chim PAN 9[1.e. 12] no.9:669-674 '64.

1. Department of Material Sciences of Warsaw Technical  
University. Submitted July 16, 1964.

POL/35-59-13-4/25

8(5)

AUTHOR: Kalinowski, Ludomir, Master of Engineering Sciences

TITLE: New Methods of Gas-Carburizing Without Generators

PERIODICAL: Przegląd mechaniczny, 1959, Nr 13, pp 428-433 (Poland)

ABSTRACT: Gas carburizing has many advantages, both technological and economic, compared to other carburising methods. These advantages, however, can only be properly exploited given careful preparation of the gas atmosphere used. The classical methods of carburizing rely on the use of generators which assure such a proper selection of the right atmosphere. But the use of gas generators involves high investment costs and certain difficulties connected with the exploitation and control of this equipment. Carburizing methods in which the use of generators is obviated are both cheaper and easier to operate. The present article discusses the most important of these. The first is a method developed in Czechoslovakia and patented in 1955 by its inventor, Engineer Zboril, under the name Cemup. The muffle furnace used in this method is illustrated in Fig 1. Fig

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POL/35-59-13-4/25

New Methods of Gas-Carburizing without Generators

2 shows in schematic form the repartition of the auxiliary equipment used in this method. Cemup relies for carburizing on a mixture of 1 part propane to 4 parts air, being about 80% of the total volume of gas, and about 20% ammonia. The method has been used successfully at the Autopraha plant in Praha. It was found that operating costs of this method are about 50% of the costs of methods using powders as carburizing agents. The author notes here that he will forgo descriptions of other gas-carburizing methods without generators, since none of them are as widely used as the Cemup method. However, the author then goes on to discuss the use of liquid carburizing agents, these being carbon compounds in the liquid state. These agents decompose in the chamber and give the required carburizing atmosphere. Of the agents used, the author mentions benzene, pyrobenzol, white spirit, naphtha, sintin (a Soviet product), isooctane, toluol, ortoxylol. Tables 1, 2 and 3 summarize some of the results obtained with these agents. The author also mentions the

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POL/35-59-13-4/25

New Methods of Gas-Carburizing without Generators

Homocarb (or Monocarb) method developed in the USA by Leeds and Northrup Co. He concludes that methods which avoid the use of generators are less suited to furnaces operating continuously but give good results with chamber, shaft and drum furnaces used for periodic carburizing. He finds particularly efficient the methods involving the creation of a carburizing atmosphere through the decomposition of liquid agents since they are more rapid and give high quality products. There are 3 diagrams, 1 graph, 4 tables and 10 references, 4 of which are Soviet, 3 English, 2 Polish and 1 Czech.

ASSOCIATION: Politechnika Warszawska (Warszawa Polytechnic)

Card 3/3

KALINOWSKI, Ladomir, dr. inż.

Continuous method of testing the Kirkendall effect. Przegl  
mech 24 no.2:55 25 Ja '65.

1. Department of Material Science of the Technical University,  
Warsaw.

CLASSIFICATION: SECRET//SI//NF//FA/PA(b)/ENP(v)/T-2/ENP(k)/ENP(h)/ENP(r)/ENA(n) Pf-4/Feb  
ACCESSION NR.: ATN 76089 14 FEB PM 2 13 40 DOC ID# A001370016  
533.662.6+533.6+13.481

AUTHOR: Kalinowski, L. (Kalinowskiy, L.) (Doctor, Engineer)

TITLE: Flutter<sup>26</sup> of hinged rotor blades<sup>27</sup> on a hovering helicopter

SOURCE: Warsaw. Instytut Lotnictwa. Prace, no. 24, 1965, 3-16

TOPIC TAGS: helicopter blade flutter, rotor blade calculation, hovering helicopter

ABSTRACT: A method of flutter analysis is proposed for hinged helicopter rotor blades. The method is based on the assumption of two degrees of freedom (flapping and pitching). The influence of the influence of the blade, feedback coupling between flapping and pitching, rotation in the axial hinge, and stiffness in the flap-hinge connection is shown. The blade is considered as a cantilever beam. A simplified model of the blade is used, and the flow over the blade is assumed to be inviscid.

ures.

[AC]

Card 1/2

ACCESSION NR: AT6016418

ASSOCIATION: Warszawski Instytut Lotnictwa (Warsaw Aviation Institute)

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NO REF SOV: 000

OTHER: 008

ATD PRESS: 4044

GRUSZECKI, Indwik; KALINOWSKI, Mirosław

Chronic anerythremic myelosis. Polski tygod. lek. 12 no.38:1462-1465  
16 Sept 57.

1. (Z Oddziału Chorob Wewnętrznych Szpitala Marynarki Wojennej).  
(ANEMIE, LEUKOERYTHROBLASTIC, case reports,  
anerythremic myelosis (Pol))



MIRECKI, Ludwik; KALINOWSKI, Miroslaw

Results of therapy with the preparation Bayer E 39. Polski tygod.  
lek. 14 no.34:1583-1586 24 Aug 59.

1. (Z II Kliniki Chorob Wewnetrznych A. M. w Gdansk; kierownik: prof.  
dr med. J. Penson).  
(ANTINEOPLASTIC AGENTS, ther.)

KALINOWSKI, Mirosław

On the effect of antistine on erythrocyte sedimentation.  
Pol. arch. med. wewnet. 33 no.8:889-894 '63.

1. Z II Kliniki Chorob Wewnętrznych AM w Gdansk Kierownik:  
prof. dr med. J. Penson.

(BLOOD SEDIMENTATION) (ANTI-HISTAMINICS)  
(PHARMACOLOGY) (NEOPLASM DIAGNOSIS)  
(DIAGNOSIS, LABORATORY)

KALINOWSKI, Mirosław; SCHMAN, Stefan

Angiomatosis of the liver associated with thrombocytopenia.  
Pol. arch. med. wewn. 34 no.6:781-784, '64

1. Z II Kliniki Chorob Wewnętrznych AMI (Kierownik: prof. dr.  
med. J. Penson) i z Zakładu Anatomii Patologicznej AMI  
(Kierownik: prof. dr. med. W. Czarnocki).

KALINOWSKI, Miroslaw

Cytodiagnostic lymph node examination in malignant granuloma.  
Wiad. lek. 18 no.16:1297-1301 15 S '65.

1. Z II Kliniki Chorob Wewnętrznych AM w Gdansk (Kierownik:  
prof. dr. med. J. Penson).

KALINOWSKI, Mirosław

Cytologic examination of the lymph nodes in systemic and metastatic tumors. Wiad. lek. 18 no.17:1367-1373 1 S '65.

1. Z II Kliniki Chorob Wewnętrznych AM w Gdansk (Kierownik: prof. dr. med. J. Penson).

KALINOWSKI, Mirosław; JUNGOWSKA, Anna; SZARMACH, Henryk

A case of extensive osseous changes in the course of recurrent secondary syphilis. Pol. tyg. lek. 20 no.19:694-695 10 My '65.

1. Z II Kliniki Chorob Wewnętrznych AM w Gdansk (Kierownik: prof. dr. med. J. Penson), z Kliniki Radiologii i Radioterapii AM w Gdansk (Kierownik: vacat) i z Kliniki Dermatologicznej AM w Gdansk (Kierownik: prof. dr. med. F. Miedzinski).

KALINOWSKI, Mirosław

Acute renal failure in multiple myeloma. Pol. arch. med. wewnet.  
35 no.3:393-396 '65.

1. Z II Kliniki Chorob Wewnętrznych Akademii Medycznej w Gdansk  
(Kierownik: prof. dr. med. J. Penson).

KALINOWSKI, Marian [o]

Direction of patients for balneotherapy. Wiadomosci lek. 8  
no.7:314-316 July '55.

1. Instytut Balneoklimatyczny, Poznan, Slowackiego 8/10  
(BALNEOLOGY, in various diseases,  
indic.)



KEMULA, W.; GRABOWSKI, Z. R.; KALINOWSKI, M. K.

Polarographic oxidation of benzopinacol. Coll Cz Chem 25 no.12:  
3306-3312 D '60. (EEAI 10:9)

1. Department of Inorganic Chemistry, University, Warsaw, Poland.

(Polarograph and polarography) (Benzopinacol)

L 12748-63 EPF(c)/EWT(1)/BDS P/016/63/000/002/002/002  
 AFFTC/ASD/ESD-3 Pi-4/Pr-4 GG/IJP(C)  
 AUTHOR: Kalinowski, Marek Krzysztof, Magister, Senior Assistant and Sadle, Andrzej Jerzy

TITLE: Electron paramagnetic resonance, I. Theoretical principles and apparatus

PERIODICAL: Wiadomosci chemiczne, no. 2, 1963, 91-113

TEXT: In this, first of a series of articles on the electron paramagnetic resonance method and the tool it provides today for theoretical investigations in the sciences and practical applications in industry, the authors deal with the basic phenomena directly associated with resonance effects, the theoretical background of paramagnetic resonance itself, and the experimental methods used to disclose resonance absorption. Under spectroscopy they discuss the fine structure of spectral lines and the spin orbit reaction, nuclear spin and the hyperfine structure, and the splitting of spectral lines in a magnetic field. They explain and derive the formulas for the theory of paramagnetic resonance, and describe

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L 12748-63

P/016/63/000/002/002/002

Electron paramagnetic resonance...  
the various devices employed for measuring resonance effects in the radio frequencies, as well as the magnetic microwave spectroscopas. There is one table and 12 figures. There are 44 references, which include 4 Polish, 5 pre-war and one East German, about 15 Russian and about 20 English references.

ASSOCIATION: Katedra Chemii Nieorganicznej Uniwersytetu Warszawskiego (Chair of Inorganic Chemistry of the University of Warsaw)  
Wydział Chemii Uniwersytetu Warszawskiego (Chemistry Division of the University of Warsaw)

SUBMITTED: September 28, 1962

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L 13304-63

EPF(c)/EWT(1)/BDS AFFTC/ASD/ESD-3 P1-4/Pr-4 GG/IJP(C)

P/016/63/000/003/001/001

AUTHOR:

Kalinowski, Marek Krzysztof, Magister, Senior Assistant  
and Sadlej, Andrzej Jerzy.

TITLE:

Electron paramagnetic resonance? II. Chemical applications  
of EPR spectroscopy. Experimental techniques and inter-  
pretation of results

PERIODICAL:

Wiadomosci chemiczne, no. 3, 1963, 171-194

TEXT:

Second of a series of two review articles in which the  
authors discuss the applications of EPR spectroscopy. They dwell in  
particular on the electron spin resonance spectra of free radicals, which  
depend on the number of atoms with a nuclear spin other than zero and on  
the spin density of the position of the unpaired electron in the atom,  
and explain the conditions determining the formation of the hyperfine  
structure by describing studies on mono- and polycrystals of DEPH and other  
free radicals, referring the reader to Ingram's monograph on the subject.

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L 13304-63

P/016/63/C00/003/001/001

Electron paramagnetic resonance...

Other headings are: Paramagnetic resonance spectra of ion crystals, resonance spectra of paramagnetic ions in solution, application of the paramagnetic resonance method to chemical kinetics, and the analytical applications of EPR. There are 2 tables and 16 figures. In addition to the key English-language reference which reads: D. J. E. Ingram, Free Radicals as studied by Electron Spin Resonance, London 1958, there are 57 other references, about one-third of which are English and about one-third Russian.

ASSOCIATION: Katedra Chemii Nieorganicznej Uniwersytetu Warszawskiego  
(Chair of Inorganic Chemistry of the University of Warsaw)  
Wydział Chemii Uniwersytetu Warszawskiego (Chemistry  
Department of the University of Warsaw)

SUBMITTED: September 28, 1962

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MANIKOV, M.Ye.

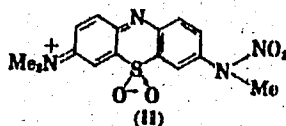
Sanatoria (for "Wiadomosci uzdrowiskowe," No.2/3, 1957, 44-50) by  
M.O.Kalinovskii. Reviewed by M.E.Manikov. Vop.kur.fizioter. i  
lech.fiz.kul't. 23 no.1:87-88 '58. (MIRA 11:3)  
(POLAND--SANATORIALS) (KALINOVSKII, M.O.)

P. KALINOWSKI

5  
2 May  
1

Distr: 4E2a(j)

[V] Structure of methylene blue nitro derivatives. T. Urbad-aki, K. Szye-Lewańska, and P. Kalinowski (Politech. Wag-saw). *Bull. Wajtkowej Akad. Tech.* 7, No. 38, 66-61 (1957).—The olive-brown compd. (I), designated by Gachm as the *trinitro deriv.* of methylene blue, and assigned the compn.  $C_{11}H_{10}N_4O_3S$ , was prepd. by his method (*C.A.* 2, 1286) by nitration with an  $HNO_3$  (d. 1.33)-AcOH mixt., and purified by crystn. from boiling AcOH acidified with  $HNO_3$ , followed by pptn. with  $HNO_3$  (d. 1.18). The solubilities of I at 20° and at the b.p. in g./100 ml., in the following solvents, were:  $Me_2CO$ , 0.1, 0.35;  $MeOH$ , 0.085, 0.20;  $EtOH$ , 0.090, 0.21;  $C_6H_6$ , 0.001, 0.02; dioxane, 0.090, —; AcOH, 0.15, 0.37. I gave a yellow color reaction in solns. with concd.  $H_2SO_4$  and red with aq.  $H_2SO_4$  and  $HNO_3$ . It is an explosive, sensitive to temp. and to flame, but not to impact. I did not react with nitroce, was hydrolyzed with 2% NaOH to a phenol, and contained nitramine groups; this contradicts Gachm's structure and confirms the proposed one II, which is discussed.



J. Stęchła

URBANSKI, T.; SZYC-LEWANSKA, K.; KALINOWSKI, P.

On products of nitration of methylene blue. Bul Ac Pol chim 7 no.3:  
147-149 '59. (EEAI 9:7)

1. Technical Military College, Warsaw. Communicated by T.Urbanski.  
(Methylene blue) (Nitration)



KALINOWSKI, R.; KOMAR, E.

Experiences with PAS in tuberculosis. Gruzlica, Warsz. 19 no. 4:  
455-458 July-Aug. 1951 (CJML 21:3)

1. Of the Warsaw Municipal Sanatorium in Otwock (Director--  
Romuald Kalinowski, M. D.).

1ST AND 2ND RECORDS		PROCEDURES AND PROPERTIES INDEX		3RD AND 4TH RECORDS	
<p><i>BC RALINOWSKI, S.</i></p>				<p><i>a-1</i></p>	
<p>Examination of the dielectric constant of            liquid dielectrics using the heterodyne method.            E. RALINOWSKI and J. KUCZYNSKI (Bosc; Chem.            1962, 12, 225-228). A description of apparatus for            approx. determination of the dielectric const. of            liquids. R. TROSKOWNI.</p>					
<p>ASB-51A METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>EDGE STRESSING</p>		<p>EDGE STRESSING</p>		<p>EDGE STRESSING</p>	
<p>LONGER 02</p>		<p>LONGER 02</p>		<p>LONGER 02</p>	
<p>0 1 2 3 4 5 6 7 8 9</p>		<p>0 1 2 3 4 5 6 7 8 9</p>		<p>0 1 2 3 4 5 6 7 8 9</p>	

KALINOWSKI, STANISŁAW.

KALINOWSKI, STANISŁAW. Results of Magnetic Observations at Swider. Warszawa  
Obserwatorium Geofizyczne w Swidrze, Prace, 1946, no. 10.

KALINOWSKI, ST.

KALINOWSKI, ST. Magnetyzm ziemski (Terrestrial Magnetism). Warszawa, 1948,  
p. 153.

RAKOWSKI, Wiktor; KALINOWSKI, Tadeusz

2 cases of pulmonary actinomycosis. Gruzlica 31 no.7:813-816  
'63.

1. Z Oddziału Plucnego Szpitala Wojskowego w Szczecinie  
Ordynator: lek. W. Rakowski i z Oddziału Plucnego Szpitala  
im. Kazimierza Dłuskiego w Stargardzie Ordynator: lek. T.  
Kalinowski.

(ACTINOMYCOSIS) (LUNG DISEASES, FUNGAL)

KALINOWSKI, ZOFIA.

KALINOWSKA, ZOFIA. Earth - the Greatest Magnet. Problemy, 1948, P. 440-443.

KALINSKA, Alicja, mgr

Development prospects of forms of vocational training for  
Gdansk Shipyard employees. Bud okretowe Warszawa 8 no. 6:  
187-188 Je '63.

1. Szefostwo Szkolenia Zawodowego Stoczni Gdanskiej,  
Gdansk.

Revised, 1956.

Possibilities of gluing pol. vinyl chloride. p.108. ACTA  
PHYSICA POLONI A Warszawa Vol. 9, No. 4, Apr. 1956.

East European Accessions List (EEAL) Library of Congress  
Vol. 5, No. 11, August 1956.



KALINSKA, Danuta

Application of epoxydized soybean oil to softening polyvinyl chloride. Polimery tworzyw wielk 7 no.7/8:245-248 J1-Ag #162.

1. Instytut Tworzyw Sztucznych, Warszawa.

KALINSKA, Danuta

Testing the usefulness of pastes by the speedy aging method.  
Polimery twora wielk 7 no.7/8:251-255 J1-Ag '62.

1. Instytut Tworzyw Sztucznych, Warszawa.

KALINSKA, Jadwiga

Effects of transfusion of the erythrocytic mass on the volume of circulating blood. Polskie arch. med. wewn. 26 no.12:1833-1836 1956.

1. Z Kliniki Hematologicznej Kierownik: prof. dr. med.

W. Lawkowicz. Instytutu Hematologii Dyrektor: doc. dr. med.

A. Trojanowski. Warszawa, ul. Chocimska 5.

(BLOOD TRANSFUSION

erythrocytes, eff. on circ. blood volume in anemia (Pol))

(BLOOD VOLUME

eff. of erythrocyte transfusion in anemia (Pol))

(ANEMIA, ther.

erythrocyte transfusion, eff. on circ. blood volume (Pol))

*KALINSKA, JADWIGA*

GUIMANTOWICZ, Anna; KALINSKA, Jadwiga

Case of pancytopenia with leukocytic antibodies following blood transfusion. Polskie arch. med. wewn. 27 no.9:1241-1254 1957.

1. Z Działu Serologii: Kierownik: prof. I. Lillie-Szyszkowicz iz z Kliniki Hematologicznej Kierownik: prof. W. Laskowicz Instytutu Hematologii Dyrektor: doc. A. Trojanowski.

(ANEMIA, APLASTIC, etiology and pathogenesis,  
blood transfusions, with anti-leukocyte antibodies (Pol))  
(BLOOD TRANSFUSION, complications,  
aplastic anemia with anti-leukocyte antibodies (Pol))  
(LEUKOCYTOSIS,  
anti-leukocyte antibodies in aplastic anemia caused  
by blood transfusions (Pol))

KALINSKA, Jadwiga (Warszawa, ul. Chocimska 5, Instytut Hematologii)

Pre- and postsplenectomy circulating blood volume. Polskie arch. med.  
wewn. 29 no.3:375-379 1959.

1. Z Oddziału Hematologicznego Kierownik: prof. dr med. W. Iawkowicz  
Instytutu Hematologii Dyrektor: doc. dr med. A. Trojanowski.

(SPLEEN, eff: of excis.

on blood volume (Pol))

(BLOOD VOLUME, physiol.

eff. of splenectomy (Pol))

KALINSKA, Jadwiga

Volume of the circulating blood in certain diseases of the blood.  
Polski tygod. lek. 14 no.26:1185-1189 29 June 59.

1. (Z Oddziału Hematologicznego; kier. prof. dr W. Lawkowiec  
Instytut Hematologii; dyr: doc. dr A. Trojanowski)  
(BLOOD VOLUME) (BLOOD DISEASES)

KALINSKA, Jadwiga

Diagnostic value and methods of the determination of circulating blood volume. Polski tygod. lek. 14 no.27:1268-1271 6 July 59.

1. (Z Oddzialu Hematologicznego, kierownik: prof. dr W. Lawkowicz,  
Instytutu Hematologii: dyrektor doc. dr A Trojanowski)  
(BLOOD VOLUME)

KALINSKA, Jadwiga; MIRKOWSKA-STELMACHOWSKA, Anna

Complications during prolonged corticosteroid therapy of patients with hemological syndromes. Polski tygod.lek.15 no.21:781-783 23 My '60.

1. Z Oddziału Hematologicznego Instytutu Hematologii w Warszawie  
kierownik Oddziału: prof. dr med. W.Lawkowicz, obecnie: dr med  
S.Pawelski; dyrektor: doc. dr med. A.Trojanowski  
(ADRENAL CORTEX HORMONES toxicol)  
(BLOOD DISEASES ther)



KALINSKA, Jadwiga

Clinical and hematological analysis of 122 cases of malignant  
granuloma. Polski tygod.lek. 15 no.30:1145-1149 25 J1 '60.

1. Z Oddziału Hematologicznego: kierownik prof. dr med. W.Lawkowicz,  
obecnie: dr med. S.Pawelski, Instytutu Hematologii: dyr. doc. dr  
med. A.Trojanowski  
(HODGKIN'S DISEASE statist.)

KALINSKA, Jadwiga; POREMBINSKA, Hanna

Hematological changes in old age. Pelski tygod. lek. 15 no.49:  
1894-1898 5 D '60.

1. Z Oddziału Hematologicznego; kierownik: dr med. S. Pawełski,  
Instytutu Hematologii; dyrektor: doc. dr med. A. Trębianowski.

(GERIATRICS) (HEMATOLOGY)

WALEWSKA, Irena; GULMANTOWICZ, Anna; KACPERSKA, Elzbieta; FRANKOWSKA, Krystyna;  
CHOJNACKA, Irmina; KALINSKA, Jadwiga; SENDYS, Natalia

Appearance of iso-antibodies against the blood platelets, leukocytes  
and erythrocytes after blood transfusion. Polski tygod. lek. 16 no.33:  
1262-1267 14 Ag '61.

1. Z Zakladu Serologii; kierownik: dr med. S. Dubiski, z Oddzialu  
Hematologicznego; kierownik: dr med. S. Pawelski i z Oddzialu Choreb  
Wewnetrznych Instytutu Hematologii; dyrektor: doc. dr med. A. Trojanowski.

(ANTIBODIES) (BLOOD TRANSFUSION) (BLOOD PLATELETS)  
(LEUKOCYTES) (ERYTHROCYTES)

CZECHOWSKA-SOBCZYNSKA, Zofia; KALINSKA, Jadwiga; KUKOLEWSKA-  
MACHNICKA, Jadwiga

Results of the treatment of malignant granuloma with roentgen  
rays. Pol. przegl. radiol. 27 no.4:339-345 '63.

1. Z Oddziału Hematologicznego Kierownik: prof. dr med. W.  
Lawkowicz i z Oddziału Wewnętrzznego Kierownik: doc. dr med.  
S. Pawelski Z Instytutu Hematologii Dyrektor: doc. dr med.  
A. Trojanowski i z Zakładu Radiologii AM w Warszawie Kierownik:  
prof. dr nauk med. W. Zawadowski.  
(HODGKIN'S DISEASE) (NEOPLASM RADIOTHERAPY)

KLEBANOWSKI, Jerzy; KALINSKA, Melania; SLOMSKA, Irena; ZASADA, Danuta

Treatment of early tuberculosis of large joints in children by means of antibiotics applied topically. Chir.narz.ruchu 25 no.2: 161-165 '60.

1. Z Sanatorium im. J. Krasickiego w Otwocku. Ordynator: dr J. Klebanowski.

(TUBERCULOSIS OSTEOARTICULAR in inf.& child.)

KLEBANOWSKI, Jerzy; SLOMSKA, Irena; KALINSKA, Melania

Is it possible to prevent rheumatoid deformities using correct  
interventions in gonitis? Chir. narzad. ruchu ortop. Pol.  
28 no.7:709-710 '63

1. Z Sanatorium Gruzlicy Kostno-Stawowej dla Dzieci im.  
J. Krasickiego w Otwocku.

Cand Med Sci

KALINSKAYA, N. A.

Dissertation: "Concerning the methods for Determination of Antigenic and  
Immunogenic Properties of Diphtheria Anatoxins."  
22/5/50

Moscow Medical Inst, Ministry of Health

RSFSR

SO Vecheryaya Moskva  
Sum 71

FEDOROV, M.V.; KALINSKAYA, T.A.

The effect of various factors in the medium on the nitrogen-fixing capacity of Azotomonas fluorescens. Mikrobiologiya 25 no.6:690-696 N-D '56. (MLRA 10:1)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A.Timiryazeva i Institut mikrobiologii AN SSSR.  
(AZOTOMONAS, culture fluorescens, eff. of various factors in medium on nitrogen fixing capacity)



ASB-LLA METALLURGICAL LITERATURE CLASSIFICATION	
RESEARCH DIVISION	RESEARCH DIVISION
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

**Grain Size Control of Austenite in Steels.** I. Fejzenko Czopowski and A. Kalinski. (Prace Badawcze Huty Baildon, 1930, Sept., pp. 3-18). (In Polish.) The authors review the existing knowledge in regard to the control of grain size of austenite, and go on to consider the elements inducing a modification, such as aluminium, titanium, zirconium, vanadium, tungsten, and molybdenum. The influence of grain size on the transformation temperature of austenite is also discussed. The second half of the article is devoted to the consideration of the results obtained experimentally by the authors, the conclusions drawn being: (1) the grain size of austenite, when once produced, cannot be changed except by reheating the steel above a certain temperature; (2) no mechanical treatment, hot or cold, can reduce the grain size of austenite; (3) the quenching capacity of the steel depends solely on the grain size of the austenite; (4) the control of the actual production of steel may be replaced by a regular control of its chemical composition followed by the determination of the grain size, as these two factors decide in advance the quality of the steel produced.

**KALINSKI, A.** 19

**The Control of the Austenite Grain Size and the Physical Properties of the Steel.** 1. Feszczenko-Chopinski and A. Kalinski. (Prace Inst. Mechaniczny, 1936, vol. 2, pp. 427-442; Stahl und Eisen, 1937, vol. 57, Apr. 1, pp. 335-350). In a basic 20-ton open-hearth furnace, various heats with controlled and uncontrolled austenite grain size were prepared; the carbon contents ranged from 0.32 to 0.57% (the nickel, chromium and copper were very low), and care was taken that the carbon in the charge was neither too high nor too low. Heavy ore additions and recarburization must be avoided at all costs if the grain size is to be controlled later; likewise, deoxidation as complete as possible before tapping is essential for grain refinement. Two heats were deoxidized normally with ferro-manganese in the furnace and ferro-silicon in the ladle. Six were treated with low-silicon ferro-silicon and ferro-manganese in the furnace and with high-silicon ferro-silicon in the ladle (Herty's method). Four heats received 0.1-0.15 kg. of aluminium per ton of steel in the ladle before the ferro-silicon addition, and four more 0.45 kg. of aluminium per ton after the ferro-silicon addition. All heats were bottom-cast into 650-kg. ingots with feeder heads. The greater aluminium addition and the presence of silicon did not increase the depth and size of the pipe—probably because the ingots were cast uphill with feeder heads. The increased aluminium and its addition after deoxidation with ferro-silicon did not increase the amount of alumina inclusions. Thorough deoxidation of the steel before tapping is essential for

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

over

successful grain refinement; hence, care must be taken that part of the aluminium is not oxidised in the following slag, owing to its being added too late. Vallée McQuaid, who attributes the grain refinement to the alloying action of the aluminium, the authors assume that the finely-divided alumina particles act as nuclei. As the production of medium grain size is difficult, the authors suggest that fine grain size should be produced, which can then be rendered medium fine by suitable heat treatment. They found that the grain size was uniform and unchanging from the first ingot to the last of a given heat; the grain size can conveniently be determined in small test ingots cast at the same time. The austenite grain size in the steels treated with aluminium was constant and was unaffected by hot- or cold-working or by heat treatment, provided that the temperature of the commencement of grain growth (which varied up to 300° above  $A_{c1}$ ) was not exceeded; the grain size could not be diminished by these treatments. On quench-hardening, the fine-grained steels were superior to the coarse-grained, being insensitive to the period of heating and the quenching temperature, and having less tendency to form hardening cracks. After carburisation, the fine-grained steels had a thin hypereutectoid case and a comparatively fine-grained core, which did not always need a refining treatment; the optimum hardening temperature varied considerably for these steels, rising to 1175° in some cases. The fine-grained steels did not harden deeply, and for a given treatment their maximum hardness was somewhat lower than that of the coarse-grained steels. Regarding mechanical properties, the fine-grained steels had the advantage: the coarse-grained, machined better, but the fine-grained were more wear-resistant, and the latter were less brittle after cold-working; in forging they filled the dies better and had a smooth surface afterwards. Whilst the fine-grained steels contained greater self-stresses after forging, they lost them readily on reheating.

Measurements of the austenite content in relation to the mode of heat treatment, the dilatometric curve of high-speed steel up to 1300°, and observations of the structural changes due to the effect of temperature and the mode of quenching appear to indicate that high-speed steel undergoes a  $\gamma$ - $\delta$  transformation at about 1150° and that, therefore, the region of the  $\gamma$  phase does not extend up to the temperatures of practical quenching. The  $\delta$  phase—in which carbides are soluble, to an extent varying with the temperature—transforms on quenching into the  $\alpha$  phase; this occurs by a simple reduction of the lattice parameter, without the  $\delta$ - $\gamma$  transformation taking place. The solubility of carbides in the quenched  $\delta$  low. The austenite, which can be observed in the quenched samples, forms during the quenching from those parts of the phase which had not transformed to  $\alpha$  phase, this owing to the rapid cooling, which lowers the temperature limit of the  $\gamma$  phase to room temperature. The more violent the quenching the hardness is the amount of austenite formed. The secondary transformation— $\delta$ - $\alpha$  transformation, the amount of austenite formed by the allotropic transformation influenced to a certain extent by the allotropic transformation, the decomposition of austenite—which is most intense in developed 500° and 600° C., the range within which this hardness is developed. This transformation favours secondary hardening during the  $\delta$ - $\alpha$  transformation, the foreign atoms are expelled from the lattice they form intermetallic compounds; and, as the conditions are probably favourable, they grow to the critical size and harden the alloy. As a result of the transformation no temper martensite forms, but probably troostite; the boundaries of the grains seen on the polished surface of the quenched metal are not those of austenite but of original  $\alpha$  grains. The homogenisation of the steel in the normal manner, more easy and rapid as the temperature is raised, becomes less intense in the neighbourhood of the melting point; an increase reaction then sets in, namely, a differentiation of the concentration of the elements, which lowers the melting point in the separate grains that in intracrystalline segregation.

**Vanadium in Steel.** I. Feszczenko-Czopiwski and A. Kalinski. (Prace Badawcze Huty Bailon, 1938, No. 3, Feb., pp. 31-42). (In Polish). The authors present an account of the main sources of vanadium, the production of vanadium metal and ferro-vanadium, and the chemistry of vanadium (with particular reference to non-metals such as nitrogen and phosphorus and to metalloids). The main purpose of the article is to discuss the effects of vanadium on the physical, chemical and mechanical properties of steel and to consider the use of vanadium in a number of proprietary and standard alloy steels the properties of which are examined in some detail with special reference to heat treatment and grain size. Tabular and graphical data are presented.

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Vanadium steel. 1. Feszlerenko-Czapowski and Allin, Kalinski, *Hutnik* 10, 81-92 (1988) (in Polish); *Metal Abstracts (in Metals & Alloys)* 9, 668; cf. C. A. 33, 2888.

\* The authors investigated metallographically the effect of addn. of 0.273% of V to medium-C steel. In all probability dendritic formations cannot be controlled by control of austenite grain size. V in aunts. sufficient to refine the grain acts also as a regular alloying element. Increase in V content from 0 to 0.273% causes progressive decrease in crit. speed of cooling. This was observed even when the hardening was effected at the lowest possible temp. It is possible that in hardening from the lowest temp. the same effect would be obtained with more than 0.273% V, although the expts. have not been extended into the region above 0.273% V. C. L. H.

AND S.E.A. METALLURGICAL LITERATURE CLASSIFICATION

KALINSKI, A.

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Dobrowida M. Kalinski A. B. III Steel and Drilling Rite.

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Characteristic properties of steel steel used for mounting steel  
piston drilling are here considered in the light of the standard  
specifications EN-104010. A review is included of the particular

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